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(71)Applicant: **NIPPON STEEL CORP**

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**(54)DEVICE FOR FEEDING AND DISPERSING  
POWDER/GRAIN IN QUANTITY**

(57)Abstract:

PURPOSE: To improve the reaction efficiency of the powder/grain with the carrying gas by providing an ultrasonic vibration providing means at the lower part of a hopper to store and feed the powder/grain inside with the specified space from the lower part of a screen to feed and disperse a large amount of fine powder/grain in a continuous, stable and uniform manner.

CONSTITUTION: A screen 2 with a number of holes is arranged to the lower part of a hopper 1 to store and feed the powder/grain 7. A vibrating plate 4 and an ultrasonic oscillator 5 are mounted on a vibration connecting bar 3, and an ultrasonic transmitter 6 is provided on the ultrasonic oscillator 5. When the vibrating plate 4 which is arranged under the screen 2 at the lower part of the hopper 1 is vibrated by the ultrasonic oscillator 5, the air between the vibrating plate 4 and the screen 2 is violently vibrate This constitution provides

the uniform vibration over the whole area of the powder/grain 7 on the screen 2, and the powder/grain is fluidized and uniformly flows out of each hole in a continuous manner. The aggregated powder/grain of the flowed-out powder/grain 7 is further dispersed by the strong vibration of the air, resulting in the uniformly fine powder/grain.

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